

CLAIMS

What is claimed is:

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1. A prosthesis comprising:

- 2 (a) a generally tubular structure; and
3 (b) a coating deposited on at least an area of a surface of
4 said generally tubular structure;
5 wherein said coating has a preselected geometrical pattern.

1 2. The prosthesis of Claim 1, wherein said surface of said generally
2 tubular structure has a surface width and wherein said preselected geometrical
3 pattern is a continuous stream having a selected stream width.

1 3. The prosthesis of Claim 2, wherein said continuous stream starts at
2 a first selected position on said surface of said generally tubular structure and ends
3 at a second selected position on said surface of said generally tubular structure.

1 4. The prosthesis of Claim 2, wherein said stream width is equal to
2 said surface width.

1 5. The prosthesis of Claim 2, wherein said stream width is smaller
2 than said surface width.

1 6. The prosthesis of Claim 2, wherein said stream width is larger than
2 said surface width.

1 7. The prosthesis of Claim 2, wherein said continuous stream is in a
2 straight line.

1 8. The prosthesis of Claim 2, wherein said continuous stream is
2 applied in a curved or angular line.

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- 1 9. The prosthesis of Claim 1, wherein said preselected geometrical
2 pattern is an intermittant pattern along said surface of said generally tubular
3 structure.
- 1 10. The prosthesis of Claim 9, wherein said intermittant pattern starts at
2 a first selected position on said surface of said generally tubular structure and ends
3 at a second selected position on said surface of said generally tubular structure.
- 1 11. The prosthesis of Claim 9, wherein said intermittant pattern is in a
2 straight line.
- 1 12. The prosthesis of Claim 9, wherein said intermittant pattern is
2 formed in a curved or angular line.
- 1 13. The prosthesis of Claim 9, wherein said intermittant pattern
2 includes at least one bead having a selected bead diameter.
- 1 14. The prosthesis of Claim 1, wherein said generally tubular structure
2 includes a channel formed into the tubular structure and has a channel width, said
3 channel extending from a first position to a second position along said surface.
- 1 15. The prosthesis of Claim 14, wherein said coating having said
2 preselected geometrical pattern is deposited at least partially within said channel.
- 1 16. The prosthesis of Claim 14, wherein said preselected geometrical
2 pattern is a continuous stream having a selected stream width.
- 1 17. The prosthesis of Claim 16, wherein said continuous stream starts at
2 a first selected position within said channel and ends at a second selected position
3 within said channel.
- 1 18. The prosthesis of Claim 16, wherein said stream width is equal to
2 said channel width.
- 1 19. The prosthesis of Claim 16, wherein said stream width is smaller
2 than said channel width.

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- 1 20. The prosthesis of Claim 16, wherein said stream width is larger than
2 said channel width.
- 1 21. The prosthesis of Claim 16, wherein said continuous stream is in a
2 straight line.
- 1 22. The prosthesis of Claim 16, wherein said continuous stream is
2 formed in a curved or angular line.
- 1 23. The prosthesis of Claim 14, wherein said preselected geometrical
2 pattern is an intermittant pattern within said channel.
- 1 24. The prosthesis of Claim 23, wherein said intermittant pattern starts
2 at a first selected position within said channel and ends at a second selected
3 position within said channel.
- 1 25. The prosthesis of Claim 23, wherein said intermittant pattern is
2 formed in a straight line.
- 1 26. The prosthesis of Claim 23, wherein said intermittant pattern is
2 formed in a curved or angular line.
- 1 27. The prosthesis of Claim 23, wherein said intermittant pattern
2 includes at least one bead having a selected bead diameter.
- 1 28. The prosthesis of Claim 1, wherein said generally tubular structure
2 includes a cavity formed into the tubular structure and has a cavity diameter within
3 said surface.
- 1 29. The prosthesis of Claim 28, wherein said coating having said
2 preselected geometrical pattern is deposited at least partially within said cavity.
- 1 30. The prosthesis of Claim 28, wherein said preselected geometrical
2 pattern is a bead having a selected bead diameter.
- 1 31. The prosthesis of Claim 30, wherein said bead diameter is equal to
2 said cavity diameter.

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1 32. The prosthesis of Claim 30, wherein said bead diameter is smaller
2 than said cavity diameter.

1 33. The prosthesis of Claim 30, wherein said bead diameter is larger
2 than said cavity diameter.

1 34. The prosthesis of Claim 28, wherein said generally tubular structure
2 includes multiple cavities within said surface.

1 35. The prosthesis of Claim 34, wherein said preselected pattern is
2 deposited at least partially within each of said multiple cavities.

1 36. The prosthesis of Claim 34, wherein said preselected pattern is
2 deposited at least partially within some but not all of said multiple cavities.

1 37. The prosthesis of Claim 1, wherein said generally tubular structure
2 is a stent having a plurality of struts and wherein said coating having said
3 preselected geometrical pattern is deposited on at least a portion of at least one
4 strut of said plurality of struts.

1 38. The prosthesis of Claim 37, wherein said at least one strut of said
2 plurality of struts includes a channel formed into said at least one strut and has a
3 channel width, said channel extending from a first position to a second position
4 along said at least one strut, and wherein said coating having said preselected
5 geometrical pattern is deposited at least partially within said channel.

1 39. The prosthesis of Claim 37, wherein said at least one strut of said
2 plurality of struts includes a cavity formed into said at least one strut and has a
3 cavity diameter and wherein said coating having said preselected geometrical
4 pattern is deposited at least partially within said cavity.

1 40. The prosthesis of Claim 37, wherein said preselected geometrical
2 pattern is repeated on a single strut of said stent.

1 41. The prosthesis of Claim 37, wherein said preselected geometrical
2 pattern is repeated on more than one strut of said stent.

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1 42. The prosthesis of Claim 1, wherein said coating comprises at least
2 one polymer.

1 43. The prosthesis of Claim 42, wherein said coating additionally
2 comprises at least one therapeutic substance.

1 44. The prosthesis of Claim 1, wherein said coating comprises at least
2 one therapeutic substance.

1 45. The prosthesis of Claim 1, wherein said coating is a first coating,
2 said prosthesis additionally comprising a second coating, wherein said second
3 coating has a second preselected geometrical pattern.

1 46. The prosthesis of Claim 45, wherein said first coating is in contact
2 with said second coating in at least one location.

1 47. The prosthesis of Claim 46, wherein said second coating covers at
2 least a portion of said first coating.

1 48. The prosthesis of Claim 45, further comprising:
2 a channel formed in the generally tubular structure, wherein said
3 first coating is deposited within the channel and said second coating is
4 deposited to at least partially cover said first coating within said channel.

1 49. The prosthesis of Claim 45, further comprising:
2 a cavity formed in the generally tubular structure, wherein said first
3 coating is deposited within the cavity and said second coating is deposited
4 to at least partially cover said first coating within said cavity.

1 50. The prosthesis of Claim 45, further comprising:
2 a channel formed in the generally tubular structure, wherein said
3 first coating and said second coating are deposited within the channel.

1 51. The prosthesis of Claim 45, further comprising:
2 a channel formed in the generally tubular structure, wherein said
3 first coating is deposited at least partially within the channel and said
4 second coating is deposited outside of said channel.

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1 52. The prosthesis of Claim 45, further comprising:
2 a plurality of cavities formed in the generally tubular structure
3 including a first group of cavities and a second group of cavities, wherein
4 said first coating is deposited at least partially within said first group of
5 cavities and said second coating is deposited at least partially within said
6 second group of cavities.

1 53. The prosthesis of Claim 45, further comprising:
2 a plurality of cavities formed in the generally tubular structure
3 including a first group of cavities and a second group of cavities, wherein
4 said first coating is deposited at least partially within said first group of
5 cavities and said second coating is deposited at least partially within said
6 second group of cavities, said first group of cavities and said second group
7 of cavities being distributed within a same region of the prosthesis.

1 54. The prosthesis of Claim 45, further comprising:
2 a plurality of cavities formed in the generally tubular structure
3 including a first group of cavities distributed within a first contiguous
4 region of said tubular structure and a second group of cavities distributed
5 within a second contiguous region of said tubular structure, wherein said
6 first coating is deposited at least partially within said first group of cavities
7 and said second coating is deposited at least partially within said second
8 group of cavities.

1 55. The prosthesis of Claim 45, further comprising:
2 a plurality of struts forming the generally tubular structure including
3 a first group of struts and a second group of struts; and
4 a plurality of cavities formed into said struts of the generally tubular
5 structure, wherein said first coating is deposited in cavities formed into said
6 first group of struts and said second coating is deposited in cavities formed
7 into said second group of struts.

1 56. The prosthesis of Claim 45, further comprising:
2 a plurality of struts forming the generally tubular structure, said
3 struts including:

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4 a plurality of links, a link forming a coupling between struts;
5 and
6 a plurality of arms, at least one arm extending from a link
7 coupling said struts; and
8 a plurality of cavities formed into said strut arms and said strut
9 links, wherein said first coating is deposited in cavities formed into said
10 strut arms and said second coating is deposited in cavities formed into said
11 strut links.

1 57. The prosthesis of Claim 45, wherein said first coating does not
2 make contact with said second coating.

1 58. The prosthesis of Claim 45, wherein said second coating comprises
2 at least one polymer.

1 59. The prosthesis of Claim 58, wherein said second coating
2 additionally comprises at least one therapeutic substance.

1 60. The prosthesis of Claim 45, wherein said second coating comprises
2 at least one therapeutic substance.

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